DRAFT
TOTAL MAXIMUM DAILY LOAD (TMDL)

For

Sediment

In Tallapoosa and Coosa River Basins

Carroll, Forsyth, Floyd, Bartow, Polk, Gordon, and Pickens Counties, Georgia

Prepared by:

US EPA Region 4
61 Forsyth Street SW
Atlanta, Georgia 30303

August 2003

United States Environmental Protection Agency

Region 4 serving the southeast

TMDL SUMMARY / SIGNATURE SHEET

SEDIMENT / Tallapoosa and Coosa River Basins
Carroll, Forsyth, Floyd, Bartow, Polk, Gordon, and Pickens Counties, Georgia
HUC 03150102, 03150103, 03150104, 03150108

In 2003, EPA Region 4 targeted twelve streams in the Tallapoosa and Coosa River Basins for assessment and 303(d) listing decision. These streams were originally placed on the State of Georgia's 1998 Section 303(d) list in response to requirements of the settlement agreement of the Georgia "TMDL" lawsuit (Sierra Club v. EPA & Hankinson; No. 194-CV-2501-MHS, N.D.GA). The settlement agreement required a stream to be listed unless data expressly demonstrated the stream supported water quality standards.

EPA Science and Support Division (SESD) conducted field investigations in 2003 to assess biological conditions and sediment/nutrient loading characteristics of the targeted waters and to identify reference streams with "healthy" biology. Based on the field studies, three of the 12 waterbodies were identified as supporting water quality standards and will be delisted on the State's 2004 303(d) list. The remaining nine waterbodies were determined not supporting the fishing designated use and remained on the State's 2002 303(d) list. The nine waterbodies requiring TMDLs and the listed impairment(s) include: Little Tallapoosa River (2 segments for biota and habitat), Settingdown and Bannister Creeks (one listing for biota and habitat); Dykes Creek and Conesena Creek (one listing for habitat and sediment), Euharlee Creek (impaired for biota), Oothkalooga Creek (biota, habitat, and sediment), Pine Log Creek (sediment), and Salacoa Creek (biota and habitat).

The TMDLs presented herein are based on the hypothesis that if the impaired waterbodies have a long-term annual sediment load similar to the biology of the reference streams, then the impacted waterbodies will remain stable and not be biologically impaired due to sediment. Watershed-scale loading of sediment in water was simulated using the Watershed Characterization System (EPA, 2001) for both the impaired and reference streams. The TMDLs are expressed in terms of average annual loads as summarized in the TMDL Summary Table. Average annual watershed loads represent the long-term processes of accumulation of sediments in the stream habitat areas that are associated with the potential for habitat alteration and aquatic life effects.

NPDES facilities discharge to both Euharlee Creek and Oothkalooga Creek. Wasteload allocations are provided to these facilities based on permit limits for monthly average loads. As shown in the TMDL summary table, the average annual sediment loads from NPDES facilities are significantly lower relative to the overall TMDL load. Assuming these facilities comply with their permits, reductions are not required to meet the TMDL. NPDES construction activities are considered a significant source of sediment. Compliance with the State of Georgia's Storm Water General Permit should lead to sediment loadings from construction sites at or below applicable targets.

Nonpoint sources of sediment are considered the major sediment producing areas in the watershed. These sources include road crossings, agriculture, and bare ground (non-permitted construction type sites, etc.). In the Little Tallapoosa River, Settingdown Creek, and Bannister Creek, instream erosion processes (i.e., stream bank and streambed erosion) are significant sources of sediment.

TMDL SUMMARY

Waterbody Segment	Drainage Area (mi^2)	Wasteload Allocation (tons/yr)	Load Allocation (tons/mi^2/yr)	TMDL (tons/mi^2/yr)	Total Load (tons/yr)	Percent Reduction
Little Tallapoosa River	85	0	120.58	120.58	10,220	46
Lower Little Tallapoosa River	247	0	120.58	120.58	29,744	72
Settingdown Creek	45	0	144.09	144.09	6,540	78
Bannister Creek	5	0	144.09	144.09	707	83
Dykes Creek	15	0	13.22	13.22	197	90
Conesena Creek	16	0	13.22	13.22	208	85
Euharlee Creek	177	4.76	13.22	13.22	2,342	92
Oothkalooga Creek	47	1.5	13.22	13.22	622	97
Pine Log Creek	111	0	13.22	13.22	1,468	88
Salacoa Creek	90	0	13.22	13.22	1,188	92

Under the authority of Section 303(d) of the Clean Water Act, 33 U.S.C. 1251 et seq., as amended by the Water Quality Act of 1987, P.L. 100-4, the U.S. Environmental Protection Agency is herby establishing TMDLs for sediment the following waterbodies. The Total Maximum Daily Loads (TMDLs) established for these waters require effluent from point sources, where applicable, and waters originating from nonpoint sources shall not exhibit sediment loadings above the limits set herein.

James D. Giattina, Director
Water Management Division

Date

Table of Contents

List of Tables

List of Figures

1. Introduction

TMDLs are required for impaired waters on a State's Section 303(d) list as required by the Federal Clean Water Act Section 303(d) and implementing regulation 40 CFR 130. A TMDL establishes the maximum amount of a pollutant a waterbody can assimilate without exceeding the applicable water quality standard. The TMDL then allocates the total allowable load to individual sources or categories of sources through wasteload allocations (WLAs) for point sources, and through load allocations (LAs) for non-point sources. In the TMDL, the WLAs and LAs provide a basis for states to reduce pollution from both point and non-point source activities that will lead to the attainment of water quality standards and protection of the designated use.

The TMDLs for the listed streams in the Tallapoosa and Coosa River Basins satisfies the consent decree obligation established in Sierra Club v. EPA, Civil Action No: 94-CV-2501-MHS (N.D.GA). The Consent Decree requires TMDLs to be developed for all waters on Georgia's most current Section 303(d) list consistent with the schedule established by Georgia for its rotating basin management approach.

As part of the settlement agreement, the State of Georgia, and subsequently EPA Region 4, was required to gather data to determine the status of waters in groups of watersheds for possible inclusion on the Georgia 303(d) list. The identification of watersheds was based on the USDA, Soil Conservation Service's report *"Georgia's Watershed Agricultural Nonpoint Source Pollution Assessment"* (USDA, 1993). Screening level bioassessments and habitat evaluation of 89 watersheds were conducted by staff from EPA Region 4 and Georgia Environmental Protection Division (EPD) in 1996 and 1997 and appropriate additions to the State's 1998 303(d) list were made.

During the winter and spring of 2003, EPA Region 4 Science and Support Division (SESD) conducted further investigations of twelve of the streams in the Tallapoosa and Coosa River Basins. The objective of the field study was to assess the biological conditions and sediment/nutrient loading characteristics of these waters. SESD scientist collected macroinvertibrate samples, waters samples, and sediment samples. Sediment samples were collected before, during and after two separate storm events.

Based on the results of the field investigation, three of the twelve waterbodies were identified as supporting water quality standards and will be delisted on the State's 2004 303(d) list. The remaining nine waterbodies were determined to not support the fishing designated use and required a TMDL. The 303(d) listings of these nine streams are shown in Table 1.

Table 1. Summary of 303(d) Listings

Waterbody	Listing ID	County	Parameter
Little Tallapoosa River	GA-TP-LITTLE_TALLAPOOSA_RIVER	Carroll	Biota, Habitat
Lower Little Tallapoosa River	GA-TP-LOWER_LITTLE_TALLAPO	Carroll	Habitat, Sediment
Settingdown Creek and Bannister Creek	GA-CA-SETTINGDOWN_BANISTER_CREEKS	Forsyth	Biota, Habitat
Dykes Creek and Conesena Creek	GA-CA-DYKES_AND_CONASEENA_CREEKS	Floyd, Bartow	Habitat, Sediment
Euharlee Creek	GA-CA-EUHARLEE_CREEK	Polk, Bartow	Biota
Oothkalooga Creek	GA-CA-OOTHKLOOGA_CREEK	Bartow, Gordon	Biota, Habitat, Sediment
Pine Log Creek	GA-CA-PINELOG_CREEK	Bartow, Gordon	Sediment
Salacoa Creek	GA-CA-SALACOA_CREEK	Pickens, Gordon	Biota, Habitat

2. Watershed Characterization

The locations of the listed streams and the reference streams in the Tallapoosa and Coosa River Basins are shown in Figures 1 and 2, respectively. The drainage areas discharging to the listed streams are identified in Figure 1 and are based on the State of Georgia's Environmental Protection Division (EPD) Hydrologic Unit Code (HUC) level 12 watershed boundaries.

Landuse characteristics for the watershed of the impaired and reference streams are shown in Table 2. Land use is based on the National Land Cover Database (NLDC) of 1995. As shown in this table, forest and agriculture (e.g., cropland and pasture) are the primary land covers in the watersheds.

The following sections summarize the field studies conducted in 2003 by EPA Region 4 Science and Ecosystem Support Division (SESD). The purpose of the field studies was to characterize the habitat of the impaired waterbodies and to determine appropriate reference sites within the ecoregion of the impaired streams. An ecoregion is a region of relative homogeneity in ecological systems. The State of Georgia is divided into seven major ecoregions based upon soil types, potential natural vegetation, land surface forms, and predominate land uses. Complete results of the biological and habitat investigations are available in Coosa/Tallapoosa Basin TMDL Rapid Bioassessment Report (**EPA, 2003)**.

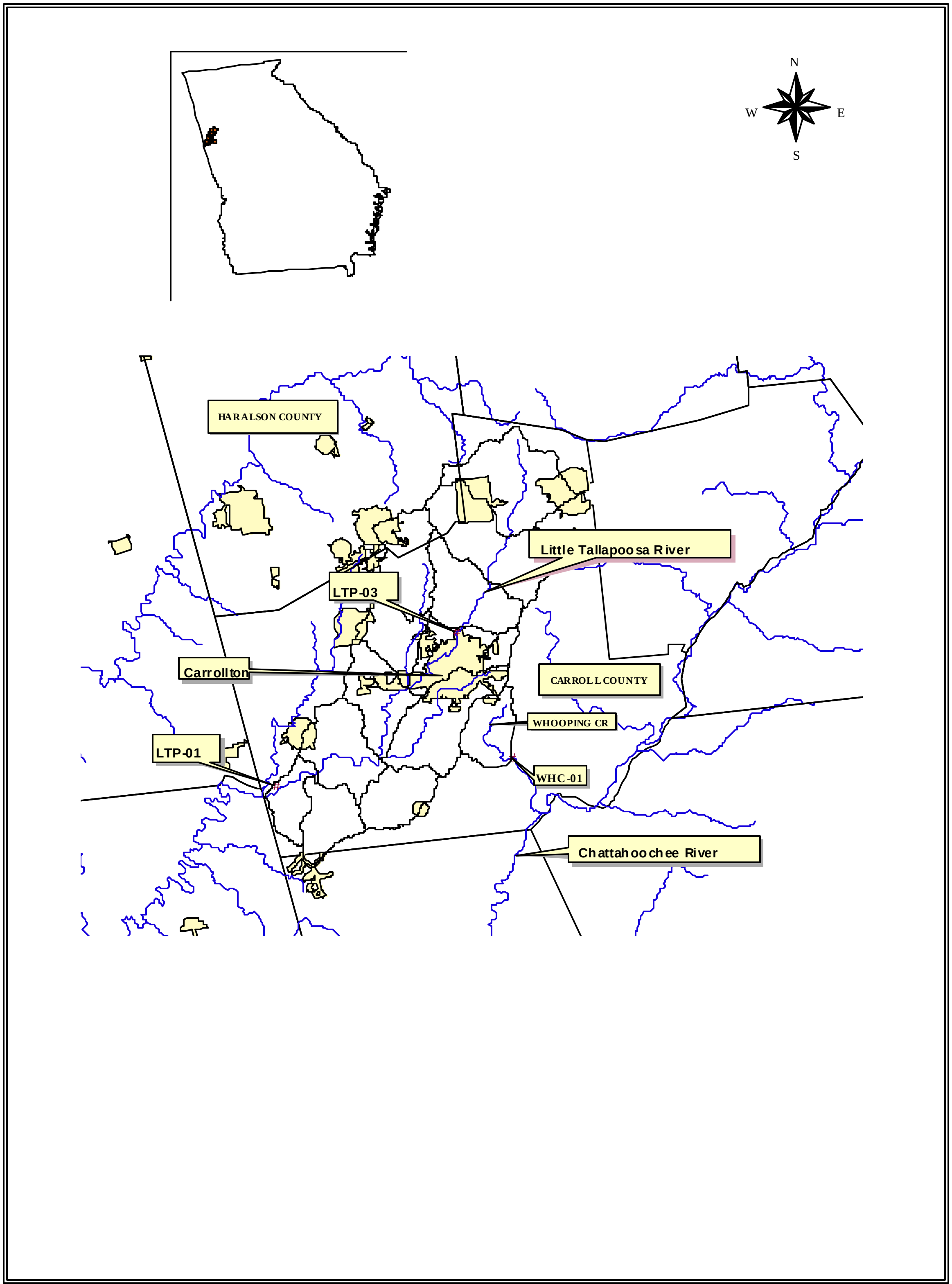

Figure 1. Location of waterbodies in Tallapoosa River Basin

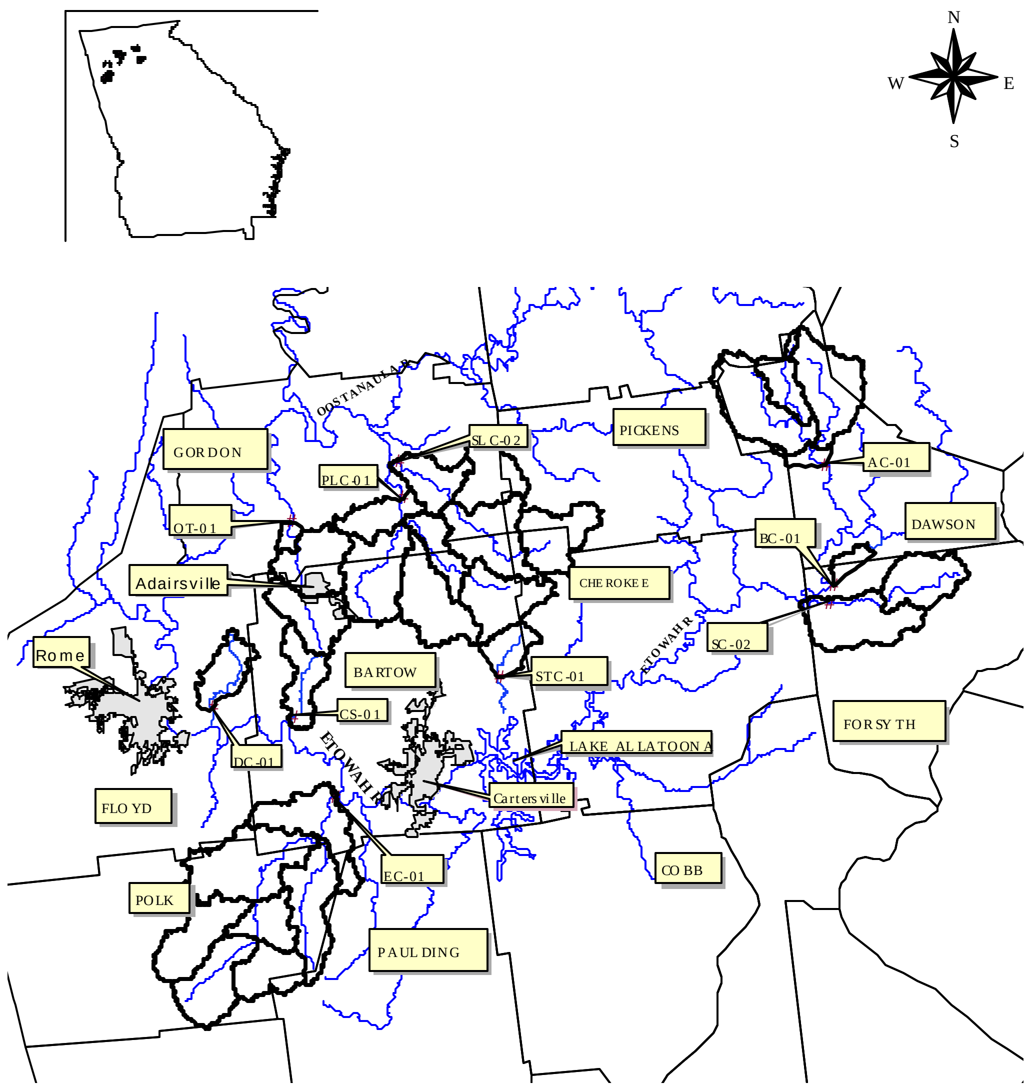

Figure 2. Location of waterbodies in Coosa River Basin

Table 2. Landuse Characteristics (acres)

Waterbody	Urban	Barren	Commercial, Industry	Agriculture	Water	Wetlands	Forest	Total
Little Tallapoosa River	754	222	1134	14669	943	2145	34349	54218
Lower Little Tallapoosa River	3736	573	4659	47620	1979	5086	94153	157806
Settingdown Creek	85	271	194	8416	203	24	19838	29031
Bannister Creek	507	186	635	4623	479	457	13118	20006
Dykes Creek	17	49	10	974	17	0	8449	9516
Conesena Creek	44	482	48	594	3	0	8889	10060
Euharlee Creek	711	2016	933	29063	443	794	79365	113326
Oothkalooga Creek	288	1934	545	7297	90	244	19705	30103
Pine Log Creek	34	2152	215	14924	104	4	53591	71024
Salacoa Creek	117	2292	169	5756	143	0	49020	57496
Whooping Creek	21	0	29	1983	65	18	6526	8642
Amicalola Creek	10	1009	18	2344	59	0	48259	51699
Stamp Creek	0	127	0	12	1	0	7092	7232

2.1. Little Tallapoosa River

The Little Tallapoosa River drains areas west of Atlanta, Georgia and mostly south of Interstate 20. The area of the river investigated lies in the western edge of the Southern Upper Piedmont Ecoregion (45a) in the state of Georgia. The western part of this ecoregion is characterized by rolling to hilly uplands. The region is mostly forested with the major forest types including oak-pine, oak-hickory and loblolly-shortleaf pine. Open areas, such as pastures and croplands, are common. In general, the area has experienced a large increase in land development during the last 20 years.

Little Tallapoosa River was investigated at two points: at State Line Road (i.e., Lower Little Tallapoosa River listing at station LTP-01) and at Northside Drive (Station LTP-03). A physical habitat survey indicated unstable banks, streambank cover, inadequate riparian zone cover, and heavy sedimentation as concerns in the river. Obvious potential for non-point source pollution and erosion was identified. Habitats available at both sites included leaf packs, undercut banks, woody debris and one riffle. Results of the biological community investigation indicated moderate impairment and degradation of habitat conditions was identified as the likely cause.

2.2. Settingdown Creek

Settingdown Creek lies north of Atlanta, Georgia in Forsyth County. It drains an area west of Lake Lanier and discharges into the Etowah River northwest of the city of Cumming. The creek lies in the eastern end of Southern Upper Piedmont Ecoregion (45a). The region is mostly forested with oak-pine, oak-hickory and loblolly-shortleaf pine forest types dominating. Open areas, such as pastures and croplands, are quite common. In general, the area has experienced a large increase in land development during the last few decades.

Settingdown Creek was sampled at Wallace Tatum Road (Station SC-02). A physical habitat survey indicated heavy sedimentation, unstable banks, and marginal streambank vegetation cover as concerns in the creek. Habitats available included leaf packs, undercut banks, woody debris, pools and riffles. Results of the biological community investigation indicated slight to moderate impairment and degradation of habitat conditions was identified as the likely cause.

2.3. Bannister Creek

Bannister Creek lies north of Atlanta, Georgia in northern Forsyth County. It drains a small area west of Lake Lanier, around the town of Hightower and discharges into the Etowah River. The creek lies in the eastern end of Southern Upper Piedmont Ecoregion (45a). The region is mostly forested with oak-pine, oak-hickory and loblolly-shortleaf pine forest types dominating. Open areas, such as pastures and croplands, are quite common. In general, the area has experienced a large increase in land development during the last few decades.

Bannister Creek was sampled at Nicholson Road (Station BC-01). The stream flows through a pasture and discharges into the Etowah 50 yards downstream. Physical habitat survey indicated very heavy sedimentation, extremely unstable banks, and extreme lack of streambank vegetation, and poor riparian zones cover as concerns for the stream. Habitats available included leaf packs, undercut banks, woody debris, pools and riffles. Results of the biological community investigation indicated a poor condition. Excessive sedimentation was identified as the likely cause of impairment.

2.4. Dykes Creek

Dykes Creek lies northwest of Atlanta, Georgia in Floyd County and drains an area east of the city of Rome. The creek discharges into the Etowah River and lies in the Southern Limestone/Dolomite Valley and Rolling Hills Ecoregion (67f). Undulating valleys, rounded ridges and hills characterize this ecoregion. Land use is variable with the presence of forests, pasture, urban, industrial, and agriculture.

Dykes Creek was sampled at State Road 293 (Station DC-01). A physical habitat survey indicated overall good conditions with the exception some riparian cover disruptions. Some sediment deposition was observed, however, it was not indicated to be excessive. The substrate was embedded to about 25%. Habitats available included leaf packs, undercut banks, woody debris, pools and riffles. Results of the biological community investigation indicated slight to moderate impairment. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.5. Conesena Creek

Conesena Creek lies northwest of Atlanta, Georgia in Bartow County and drains and area between the cities of Rome and Cartersville. The creek discharges in the Etowah River and lies in the Southern Limestone/Dolomite Valley and Rolling Hills Ecoregion (67f). Undulating valleys, rounded ridges and hills characterize the ecoregion. Land use is variable with the presence of forests, pasture, urban, industrial, and agriculture.

Conesena Creek was sampled at Old Rome Road (Station CS-01). A physical habitat survey indicated moderate sedimentation, embeddedness of substrate and the presence of side and point bars within the stream. Habitats available included leaf packs, undercut banks, woody debris, pools and riffles. Results of the biological community investigation indicated slight to moderate impairment and degradation of habitat conditions was identified as the likely cause. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.6. Euharlee Creek

Euharlee Creek lies northwest of Atlanta, Georgia in Bartow and Polk Counties. It drains an area southwest of Cartersville and discharges in the Etowah River. The creek lies in the Southern Limestone/Dolomite Valley and Rolling Hills Ecoregion (67f). Undulating valleys, rounded ridges and hills characterize the ecoregion. Land use is variable with the presence of forests, pasture, urban/sub-urban, industrial, and agriculture.

Euharlee Creek was sampled at Covered Bridge Road (Station EC-01). A physical habitat survey indicated moderate sedimentation, embeddedness of substrate, scarcity of riffles, unstable banks, and marginal riparian zone cover as issues in the creek. Abundant algal growth was noted, along with some sulfide odors. Habitats available included leaf packs, undercut banks, woody debris, and gravel runs. Results of the biological community investigation indicated moderate impairment of the community. Degradation of habitat conditions and water quality were identified as likely causes of impairment. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.7. Oothkalooga Creek

Oothkalooga Creek lies northwest of Atlanta, Georgia in Bartow and Gordon Counties. It drains an area around Adairsville and discharges into the Oostanaula River near Calhoun, Georgia. The creek lies in the Southern Shale Valley Ecoregion (67g). The ecoregion is characterized by undulating to rolling valleys and low, rounded hills. Land use is mixed and includes forested, agriculture, pasture, and urban.

Oothkalooga Creek was sampled at Salem Road (Station OT-01). Land use surrounding the sample site was primarily field/pasture and obvious potential for non-point source pollution and erosion was identified. A physical habitat survey indicated unstable banks, poor streambank vegetation, lack of riffles, and inadequate riparian zone cover as concerns in the stream. Habitats available included leaf packs, undercut banks, woody debris and bottom substrate. Results of the biological community investigation indicated moderate impairment and degradation of habitat conditions was identified as the likely cause. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.8. Pine Log Creek

Pine Log Creek lies northwest of Atlanta, Georgia in Bartow and Gordon Counties. It drains an area north of Cartersville and joins with Salacoa Creek before it discharges into the Oostanaula River upstream of Calhoun, Georgia. The creek lies in the Southern Shale Valley Ecoregion (67g). The ecoregion is characterized by undulating to rolling valleys and low, rounded hills. Land use is mixed and includes forested, agriculture, pasture, and urban.

Pine Log Creek was sampled at Boone Ford Road (Station PLC-01). A physical habitat survey indicated obvious habitat concerns. Poor bank stability, excessive sedimentation, embeddedness of habitats at 75%, lack of adequate velocity/depth regimes, lack of streambank vegetation, and poor riparian zone vegetation cover were identified as concerns for the creek. Habitats available for sampling included only woody debris and gravel runs. Results of the biological community investigation indicated moderate impairment. Degraded habitat conditions were identified as the likely cause of impairment. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.9. Salacoa Creek

Salacoa Creek lies northwest of Atlanta, Georgia in Cherokee, Pickens and Gordon Counties. It drains an area west of Calhoun, Georgia and discharges into the Oostanaula River. The creek lies in the Southern Shale Valley Ecoregion (67g). The ecoregion is characterized by undulating to rolling valleys and low, rounded hills. Land use is mixed and includes forested, agriculture, pasture, and urban.

Salacoa Creek was sampled at Knight Bottom Road (Station SLC-02). Land use surrounding the sample point was primarily field/pasture and obvious potential for non-point source pollution and erosion was identified. A physical habitat survey indicated unstable banks, poor streambank vegetation, inadequate riffles, and poor riparian zone cover as concerns in the stream. Habitats available included leaf packs, riffles, undercut banks, woody debris and bottom substrate. Results of the biological community investigation indicated moderate impairment and degradation of habitat conditions was identified as the likely cause. Elevated conductivity levels in comparison with reference conditions were documented at the site. However, no violations of state water quality standards were noted.

2.10. Amicalola Creek

Amicalola Creek lies north of Atlanta, Georgia and drains an area northwest of Lake Lanier in Dawson County. The Creek lies along the northern edge of the Southern Upper Piedmont Ecoregion (45a). The ecoregion is characterized by rolling to hilly uplands. The region is mostly forested with the major forest types including oak-pine, oak-hickory and loblolly-shortleaf pine. Open areas, such as pastures and croplands, are common. In general, the area has experienced a large increase in land development during the last 20 years. However, Amicalola Creek primarily drains undeveloped land within the Dawson Forest Wildlife Management Area.

Amicalola Creek was sampled at County Road 192 (Station AC-01). A physical habitat survey indicated optimal habitat conditions are present. The survey documented minimal sediment deposition, a diversity of velocity and depth regimes, the presence of optimal epifaunal substrate, stable stream banks and adequate vegetation cover. The habitat evaluation score places Amicalola Creek in the optimal range of conditions. Results of the biological community investigation indicated the stream is in good condition and further validates its selection as a reference site.

2.11. Whooping Creek

Whooping Creek lies west of Atlanta, Georgia and drains an area south of Carrolton, Georgia in Carroll County. Whooping Creek discharges to the Chattahoochee River. The creek lies in the western edge of the Southern Upper Piedmont Ecoregion (45a). The western part of this ecoregion is characterized by rolling to hilly uplands. The region is mostly forested with the major forest types including oak-pine, oak-hickory and loblolly-shortleaf pine. Open areas, such as pastures and croplands, are common. In general, the area has experienced a large increase in land development during the last 20 years.

Whooping Creek was sampled at State Route 5 (Station WHC-01). A physical habitat survey indicated good habitat quality, with the exception of some bank stability problems. However, the survey documented the presence of optimal epifaunal substrate, low sediment deposition and very little embeddedness. These characteristics make Whooping Creek an excellent candidate for reference conditions in the lower Southern Upper Piedmont ecoregion. Results of the biological community investigation indicated the stream is in good condition and further validates its selection as a reference site.

2.12. Stamp Creek

Stamp Creek lies northwest of Atlanta, Georgia in eastern Bartow County. It drains part of the Pine Log Wildlife Management Area and discharges into Lake Allatoona near Cartersville, Georgia. The creek lies near the southern edge of the Blue Ridge in the Southern Metasedimentary Mountains Ecoregion(66g). This region is known as one of the richest centers of biodiversity in the eastern United States. The area is characterized by open, low hills with some isolated masses of rugged mountains and supports diverse and complex communities of plants and animals.

Stamp Creek was sampled at Stamp Creek Road (Station STC-01). A physical habitat survey indicated optimal habitat conditions are present at the sample site. The survey documented very little sediment deposition, prominent riffles, and optimal epifaunal substrate. The Stamp Creek habitat evaluation score is the highest of all streams sampled during the 2003 field investigations. Results of the biological community investigation indicate that the Stamp Creek biological community is in good condition and validates its selection as a reference site.

3. Target Identification

3.1 Numerical Target

The water use classification for the impaired waterbodies is fishing. The fishing classification, as stated in Georgia's Rules and Regulations for Water Quality Control Chapter 391-3-6-.03(6)(c), is established to protect the "[p]ropogation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or for any other use requiring water of a lower quality".

GAEPD has established narrative criteria for sediment that applies to all waters of the State. Georgia Regulation 391-3-6-.03(5)(e) of Georgia's Rules and Regulations for Water Quality Control states that "[a]ll waters shall be free from material related to municipal, industrial, or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses".

3.2 Target Selection

The TMDLs presented herein are based on the hypothesis that if the impaired waterbodies have a long-term annual sediment load similar to a biologically unimpacted, healthy stream in the same ecoregion, then the impacted waterbodies will remain stable and not be biologically impaired due to sediment. During the 2003 field investigations, SESD identified three streams in the Upper Piedmont and Ridge and Valley ecoregions that were determined to have habitat of acceptable quality and a macroinvertebrate community that is not adversely impacted by sediment. Table 3 lists the reference streams and the target sediment watershed load.

The criteria SESD used in selecting the reference sites included: 1) level of human disturbance; 2) accessibility; 3) representativeness; and 4) health of the stream. Other considerations included lack of permitted discharges, landuse classification, and good riparian conditions. Once the reference site was selected, SESD used established metrics to assess the biotic integrity of both the impaired stream and the reference site. SESD collected macroinvertebrate samples to provide additional information on water quality conditions.

Habitat assessments were completed for the reference sites as well as the listed streams. The habitat assessment evaluates the stream's physical parameters and is broken in three levels: 1) instream characteristics affecting biological communities (e.g., instream cover, epifaunal substrate, embededness, and riffle frequency); 2) channel morophology, and 3) riparian zone surrounding the stream.

Table 3. Target Loads for Reference Streams

Reference Stream	County	Drainage Area (mi^2)	Target Yield ($tons/mi^2/yr$)	Impacted Waterbodies
Whooping Creek	Carroll	14	120.58	Little Tallapoosa River (both segments)
Amicalola Creek	Carroll	81	144.09	Settingdown Creek, Bannister Creek
Stamp Creek	Bartow	11	13.22	Dykes Creek, Conesena Creek, Euharlee Creek, Oothkalooga Creek, Pine Log Creek, Salacoa Creek

4. Source Assessment

A TMDL evaluation examines the known potential sources of the pollutant in the watershed, including point sources, nonpoint sources, and background levels. For the purpose of these TMDLs, facilities under the National Pollutant Discharge Elimination System (NPDES) Program are considered point sources.

4.1 Point Sources

Four point sources have been identified on Euharlee Creek, however these discharges are over 15 miles upstream of the sampling location. Two of the point sources are municipal wastewater treatment plants: the City of Rockmart Water Pollution Control Plant and the City of Aragon/Polk County Water Pollution Control Plant. The other two dischargers are private companies: Engineered Fabrics Corporation and Rockmart Slate Corporation. Engineered Fabrics Corporation manufactures rubber and fabrics for military and commercial uses. Rockmart Slate Corporation is a quarry operation manufacturing landscaping stones and assorted slate products. No current permit violations for any of the point sources were discovered during a database search. Permit information for these facilities are provided in Table 4.

Two point source dischargers have been identified on Oothkalooga Creek, however they are located over 5 miles upstream of the sampling location. The point sources are the City of Adairsville Water Pollution Control Plant and the Vulcan Materials Company. Vulcan Materials is a quarry operation that produces crushed stone, sand and gravel for use in construction products. No current permit violations for either discharge were discovered during a database search. Permit information for these facilities are provided in Table 4.

Table 4. Permit Information for NPDES Facilities

Facility	Permit No.	Receiving Water	County	Flow (mgd)	Permit Limits (average 30day values)		WLA (tons/yr)
					Conc. (mg/L)	Load (kg/day)	
City of Rockmart WPCP	GA0026042	Euharlee Cr.	Polk	3.0	30	341	4.51
City of Aragon/Polk County WPCP	GA0026182	Euharlee Cr.	Polk	0.17	30	19	0.25
Engineered Fabrics Corporation	GA0000523	Unnamed tributary to Euharlee Cr.	Polk	Minor	No TSS or Turbidity limits		
Rockmart Slate Corporation	GA0001929	Lake Doreen Cr.	Polk	Minor	Limits not available		

Facility	Permit No.	Receiving Water	County	Flow (mgd)	Permit Limits (average 30day values) Conc. (mg/L)	Load (kg/day)	WLA (tons/yr)
City of Adairsville WPCP (south)	GA0032832	Oothkalooga Cr.	Bartow	0.5	30	57	0.75
Adairsville WPCP (north)	GA0046035			1.0	30	57	0.75
Vulcan Materials Company	GA0033413	Oothkalooga Cr.	Bartow	Minor	Limits not available		

Other potential point source discharges in the listed streams are storm water discharges of sediment associated with construction activities. GAEPD has developed a general storm water permit covering all existing and new storm water point source dischargers required to have a permit. Discharge from storm water associated with construction activity to the waters of the State are authorized in accordance with the limitations, monitoring requirements, and other conditions set forth in Parts I through IV of the Georgia General Storm Water Permit for Construction Activities (Storm Water Permit). A Comprehensive Monitoring Plan with turbidity monitoring requirements is required to assure any storm water discharge from the site does not cause or contribute to the existing sediment problem.

The Storm Water Permit can be considered a water quality-based permit, in that the numerical limits in the permit, if met and enforced, will not cause a water quality problem in an unimpaired stream or contribute to an existing problem in an impaired stream. It is recommended that for the impaired streams in the Tallapoosa and Coosa River Basins, the cold water (trout stream) turbidity table be used.

4.2 Nonpoint Sources

Roads, agriculture, bare ground (i.e., non-permitted construction type sites, etc.), and silviculture are the major nonpoint source of sediment in the watersheds. Although several of the watershed have point source discharges of sediment, nonpoint sources are considered the primary source of sediment in the impaired waterbodies.

The watershed loadings of sediment in water from nonpoint sources in the watershed were simulated using the Watershed Characterization System Sediment Tool (WCS, EPA, 2001). The WCS provides a mechanistic, simplistic simulation of precipitation-driven runoff and sediment delivery based on the Universal Soil Loss Equation (USLE). The WCS is intended to be applicable without calibration. The USLE equation is designed as a method to predict average annual soil loss caused by sheet and rill erosion.

While it can estimate long-term annual soil loss and guide on proper cropping, management, and conservation practices, it cannot be applied to a specific year or storm event. A summary of USLE input parameters used to estimate the watershed loadings is provided in Appendix A. Details of the WCS Sediment Tool are documented in the TMDL developed for sediment in the Upper Chattahoochee River Basin (EPA, 2003).

In addition to using WCS to estimate the sediment loadings in the impaired streams, loadings were calculated using suspended sediment concentrations (SSC) measured during the SCSD field study (see Appendix A). Comparing the loads calculated from field measurements to those calculated using WCS is not exact as the field measurements are representative of one point in time during wet weather conditions. WCS loads are more representative of average conditions during all seasons. Additionally, the WCS loads represent runoff from the watershed only, whereas the loads calculated from field measurements include sediment from both runoff and streambed and bank erosion. In general, the sediment loads calculated from the storm data are greater than the watershed loads estimated using WCS (see Appendix A). Sediment loadings estimated for existing conditions in the impaired waterbodies are shown in Table 5 and represent average annual loads based on results of the WCS analysis.

Table 5. Estimated Sediment Loadings for Existing Conditions

Waterbody	**Drainage Area (mi^2)**	**Yield ($tons/mi^2/yr$)**	**Total Load (tons/yr)**
Little Tallapoosa River (3150108190)	85	402.09	34,081
Little Tallapoosa River (3150108180)	247	432.38	106,660
Settingdown Creek (3150104030)	45	109.05	4,949
Bannister Creek (need ID)	5	87.58	429
Dykes Creek (3150104170)	15	128.26	1,908
Conesena Creek (need ID)	16	86.21	1,356
Euharlee Creek (3150104150)	177	172.89	30,627
Oothkalooga Creek (3150103020)	47	422.32	19,874
Pine Log Creek (3150102060)	111	109.30	12,134
Salacoa Creek (3150102050)	90	156.27	14,046

5. Total Maximum Daily Load (TMDL)

A TMDL establishes the total pollutant load a waterbody can assimilate and still achieve water quality standards. The components of a TMDL include a wasteload allocation (WLA) for point sources, a load allocation (LA) for nonpoint sources (including natural background), and a margin of safety (MOS), either implicitly or explicitly, to account for uncertainty in the analysis. Conceptually, a TMDL is defined by the equation:

TMDL = Ó WLA + Ó LA + MOS

The TMDLs for the Tallapoosa and Coosa River Basin streams are expressed in terms of sediment yield, in units of tons/mi^2/yr, based on average annual area-weighted loads calculated using the WCS Sediment Tool. It is acceptable for TMDLs to be expressed through other appropriate measures (e.g., sediment yield) other than mass loads per time (40 CFR 130.2). The TMDLs are also expressed as total annual loads as several of the streams have NPDES facilities discharging sediment and permit limits are expressed in units of mass loads per time. TMDL components are shown in Table 6.

Table 6. TMDL Components

Waterbody Segment	Drainage Area (mi^2)	Wasteload Allocation (tons/yr)	Load Allocation (tons/mi^2/yr)	TMDL (tons/mi^2/yr)	Total Load (tons/yr)	Percent Reduction
Little Tallapoosa River	85	0	120.58	120.58	10,220	46 (see note 1)
Lower Little Tallapoosa River	247	0	120.58	120.58	29,744	72
Settingdown Creek	45	0	144.09	144.09	6,540	78 (see note 1)
Bannister Creek	5	0	144.09	144.09	707	83 (see note 1)
Dykes Creek	15	0	13.22	13.22	197	90
Conesena Creek	16	0	13.22	13.22	208	85
Euharlee Creek	177	4.76	13.22	13.22	2,342	92
Oothkalooga Creek	47	1.5	13.22	13.22	622	97
Pine Log Creek	111	0	13.22	13.22	1,468	88
Salacoa Creek	90	0	13.22	13.22	1,188	92

Notes:
1. Percent reductions are based on storm sampling data rather than watershed model as instream erosion processes dominate sources of sediment in these waterbodies.

5.1 Wasteload Allocation (WLA)

As shown in Table 6, the contribution of sediment from NPDES facilities, when present, is significantly less than the load transported to the stream from nonpoint sources. **Sediment discharging from water pollution control plants (WPCPs) is predominately organic sediment and would likely decay before accumulating on the streambed. Because of the organic nature of the sediment, reductions are not required from the NPDES facilities.**

Compliance with the Georgia Storm Water Permit will ensure construction sites meet the TMDL area weighted loadings. EPA assumes that construction activities in the watershed will be conducted in compliance with Georgia's Storm Water Permit including monitoring and discharge limitations. Compliance with these permits should lead to sediment loadings from construction sites at or below applicable targets.

5.2 Load Allocation (LA)

Nonpoint sources are considered to be the primary cause of sediment impairment in the listed streams. To reduce sediment from agricultural activities, road crossing, and construction activities, restoration of riparian buffer zones is recommended. For streams in the Piedmont Ecoregion where stream banks and streambed erosion appear to be the sources of sediment, instream restoration activities should be the focus to ensure compliance with the TMDL. Further ongoing monitoring needs to be completed to monitor progress and to assure further degradation does not occur.

For those land disturbing activities related to silviculture that may occur on public lands, it is recommended that practices as outlined for landowners, foresters, timber buyers, loggers, site preparation and reforestation contractors, and others involved with silvicultural operations follow the practices to minimize nonpoint source pollution as outlined in "Georgia's Best Management Practices for Forestry (GaEPD 1999).

For the waterbodies located in the Piedmont ecoregion (i.e., Little Tallapoosa River, Settingdown Creek and Banister Creek), the percent reductions necessary to meet the loading conditions in the reference streams are based on data. In the Piedmont ecoregion, streams are widening and streambeds are being undercut, an indication that the predominate sediment load is from instream processes rather than runoff from the watershed. The WCS analysis does not account for this source of sediment. It was not appropriate to convert the loads calculated from storm data to average annual loads as this results in an overestimate of the sediment load.

5.3 Margin of Safety

A Margin of Safety (MOS) is a required component of a TMDL that accounts for the uncertainty in the relationship between the pollutant leads and the quality of the receiving waterbody. The MOS is typically incorporated into the conservative assumptions used to develop the TMDL. A MOS is incorporated into these TMDLs by selecting the average sediment loading numerical target rather than the greatest allowable sediment loading value for streams that have been identified as having good habitat and biology.

5.4 Critical Conditions

The average annual watershed load represents the long-term processes of sediment accumulation of sediments in the stream habitat areas that are associated with the potential for habitat alteration and aquatic life effects.

5.5 Seasonal Variation

Seasonal variation is incorporated in these TMDLs through the use of average annual loads.

6. Recommendations

EPA and EPD have developed Implementation Plans for sediment TMDLs in other impaired waterbodies in the state. Details of this plan can be found in "*Total Maximum Daily Load for Sediment in the Chattahoochee River Basin, GA*" (EPA, 2003). In summary, the Implementation Plan includes a list of best management practices (BMPs) and provides for an initial implementation of demonstration projects to address one or more of the major sources of pollutants identified in the TMDL.

REFERENCES

GaEPD, 1999. Georgia's Best Management Practices for Forestry. Georgia Environmental Protection Division, Georgia Forestry Commission, Georgia Forestry Association. January 1999

Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03, Water Use Classifications and Water Quality Standards, July 2000

Sierra Club v. EPA & Hankinson USDC-ND-GA Atlanta Div. #1: 94-CV-2501-MHS, 1998.

USDA. 1993. Georgia Watershed Agricultural Nonpoint Source Pollution Assessment - Cooperative River Basin Study. U.S. Department of Agriculture, Soil Conservation Service, Athens, Georgia.

USEPA Region 4 SESD. 2003. Coosa/Tallapoosa Basin TMDL Rapid Bioassessment Report.

USEPA. 2003. *Total Maximum Daily Load for Sediment in the Chattahoochee River Basin, GA.* February 2003.

USEPA. 1998. Better Assessment Science Integrating Point and Nonpoint Sources, BASINS, *Version 2.0 User' s Manua*l. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

USEPA. Region 4. 2001. Watershed Characterization System – User's Manual. U.S. Environmental Protection Agency, Region 4, Atlanta, Georgia.

USEPA. 1991. Guidance for Water Quality-based Decisions: The TMDL Process. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA/440/4-91-001, April 1991.

USEPA. 1999b. "Protocol for Developing Sediment TMDLs, First Edition"

APPENDIX A

SEDIMENT LOADS

During the field investigation, EPA collected suspended sediment concentration (SSC) samples in both the impaired and reference streams. Samples were collected using both automated and integrated samplers. In the following data tables, automated samplers are designated with the letter "A"; integrated samplers are designated with the letter "I" in the sample identification. In most of the streams, the automated samplers collected data during the entire storm event. The average load calculated using the "A" samples were compared to the model results.

Table A- 1. Data Summary Table for Tallapoosa River Basin

Little Tallapoosa River (downstream station)

Sample	Date	Time	SSC (mg/L)	SSC (kg/hr/mi^2)	Flow (cfs)
LTP01-01I	4/3/03	1445	12	1.08	244.30
LTP01-02I	4/7/03	1430	70	17.80	690.83
LTP01-03I	4/7/03	1755	89	22.82	696.70
LTP01-04I	4/7/03	2300	100	25.43	690.83
LTP01-05I	4/8/03	810	110	27.85	687.90
LTP01-06I	4/8/03	1320	70	16.33	633.82
LTP01-07I	4/8/03	1810	49	10.27	569.48
LTP01-08I	4/9/03	740	35	6.75	524.05
LTP01-08C	4/9/03	745	47	9.07	524.05
AVERAGE				**15.27**	
LTP01-07A	4/6/03	1000	13	1.19	248.87
LTP01-10A	4/7/03	400	13	2.88	601.10
LTP01-12A	4/7/03	1320	65	16.46	687.90
LTP01-13A	4/7/03	1620	80	20.52	696.70
LTP01-14A	4/7/03	1920	85	21.71	693.76
LTP01-15A	4/7/03	2220	95	24.16	690.83
LTP01-18A	4/8/03	720	68	17.22	687.90
LTP01-20A	4/8/03	1320	59	13.77	633.82
LTP01-21A	4/8/03	1630	51	11.08	590.44
LTP01-22A	4/8/03	1930	45	9.18	554.07
LTP01-24A	4/9/03	130	39	7.31	509.43
LTP01-26A	4/9/03	730	35	6.78	526.51
AVERAGE				**12.69**	

Little Tallapoosa River (upstream station)

Sample	Date	Time	SSC (mg/L)	SSC (kg/hr/mi^2)	Flow (cfs)
LTP03-01I	4/3/03	1130	10	1.27	121.21
LTP03-02I	4/7/03	1205	48	10.44	206.68
LTP03-03I	4/7/03	1640	50	12.56	238.83
LTP03-04I	4/7/03	2220	80	20.22	240.29
LTP03-05I	4/8/03	710	46	10.66	220.32
LTP03-06I	4/8/03	1135	38	8.31	208.02
LTP03-07I	4/9/03	905	19	3.84	192.26
LTP03-07C	4/9/03	910	26	5.26	192.26
AVERAGE				**9.07**	
LTP03-08A	4/6/03	1600	11	1.52	131.21
LTP03-10A	4/7/03	0400	12	1.73	137.44
LTP03-12A	4/7/03	1130	37	7.84	201.37
LTP03-13A	4/7/03	1430	41	9.87	228.75
LTP03-14A	4/7/03	1730	41	10.36	240.29
LTP03-15A	4/7/03	2030	41	10.49	243.22
LTP03-16A	4/7/03	2330	37	9.29	238.83
LTP03-18A	4/8/03	0530	29	6.89	225.92
LTP03-19A	4/8/03	0830	26	5.91	216.17
LTP03-20A	4/8/03	1130	22	4.81	208.02
LTP03-21A	4/8/03	1430	20	4.21	200.05
AVERAGE				**6.63**	

Table A- 2. Data Summary for Reference Stream in Tallapoosa River Basin

Whooping Creek (reference stream for Little Tallapoosa River)

Sample	Date	Time	SSC (mg/L)	SSC (kg/hr/mi^2)	Flow (cfs)
WHC01-01I	4/3/03	1300	3.1	0.53	23.92
WHC01-02I	4/7/03	1310	54	12.57	32.76
WHC01-03I	4/7/03	1535	45	9.91	30.99
WHC01-04I	4/7/03	1710	41	9.03	30.99
WHC01-05I	4/7/03	2335	18	3.64	28.48
WHC01-1G	4/7/03	855	14	2.83	28.48
WHC01-06I	4/8/03	900	7.9	1.55	27.68
AVERAGE				**5.72**	
WHC01-01A	4/4/03	2200	3	0.51	23.92
WHC01-03A	4/5/03	1000	3	0.51	23.92
WHC01-06A	4/6/03	0400	4	0.68	23.92
WHC01-08A	4/6/03	1600	3.1	0.53	23.92
WHC01-09A	4/6/03	2200	3	0.51	23.92
WHC01-11A	4/7/03	1000	11	2.49	31.87
WHC01-12A	4/7/03	1220	49	11.40	32.76
WHC01-13A	4/7/03	1420	58	13.50	32.76
WHC01-14A	4/7/03	1620	42	9.25	30.99
WHC01-17A	4/7/03	2220	18	3.64	28.48
WHC01-18A	4/8/03	0020	16	3.15	27.68
WHC01-19A	4/8/03	220	14	2.75	27.68
WHC01-22A	4/8/03	820	8.5	1.67	27.68
WHC01-23A	4/8/03	1020	7.8	1.53	27.68
WHC01-24A	4/8/03	1320	6.4	1.26	27.68
AVERAGE				**3.56**	

Table A- 3. Data Summary for Settingdown Creek

Settingdown Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
SC02-01I	02/25/03	1641	32	7.99	125.17
SC02-02I	02/27/03	900	1200	405.46	169.34
SC02-03I	02/27/03	1500	610	316.95	260.40
SC02-04I	02/28/03	930	120	67.35	281.28
SC02-05I	03/01/03	825	64	22.89	179.26
AVERAGE				**203.16**	
SC02-01A	02/26/03	2200	54	15.40	142.9239
SC02-06A	02/27/03	800	60	19.23	160.6567
SC02-07A	02/27/03	1000	140	44.88	160.6567
SC02-08A	02/27/03	1200	540	284.52	264.0685
SC02-09A	02/27/03	1400	1200	603.54	252.0666
SC02-10A	02/27/03	1600	860	452.56	263.7344
SC02-12A	02/27/03	2000	120	58.39	243.8661
SC02-16A	02/28/03	400	160	53.02	166.0677
SC02-19A	02/28/03	1000	130	72.04	277.7243
SC02-26A	03/01/03	800	55	19.78	180.2694
AVERAGE				**162.34**	

Table A- 4. Data summary for Bannister Creek

Bannister Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
BC01-01I	02/26/03	1720	40	8.31	33.06292
BC01-02I	02/27/03	945	520	593.26	181.5337
BC01-03I	02/27/03	1620	130	90.75	111.0771
BC01-04I	02/28/03	1000	58	21.35	58.57941
BC01-05I	02/28/03	1455	56	17.91	50.88234
AVERAGE				**146.32**	
BC01-01A	02/26/03	2230	39	9.58	39.10409
BC01-03A	02/27/03	230	32	17.07	84.8633
BC01-05A	02/27/03	630	43	48.16	178.201
BC01-06A	02/27/03	830	57	66.92	186.8063
BC01-07A	02/27/03	1030	1100	1217.34	176.0906
BC01-08A	02/27/03	1230	890	881.08	157.5221
BC01-09A	02/27/03	1430	340	296.09	138.5671
BC01-11A	02/27/03	1800	67	47.41	112.5945
BC01-15A	02/28/03	200	75	36.00	76.38416
BC01-19A	02/28/03	1000	61	22.46	58.57941
BC01-21A	02/28/03	1400	61	20.02	52.22256
BC01-22A	02/28/03	1600	65	20.26	49.58486
BC01-26A	03/01/03	800	30	8.32	44.11387
AVERAGE				**206.98**	

Table A- 5. Data Summary Table for Dykes Creek

Dykes Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
DC01A-BFI	02/26/03	1835	3.5	0.91	41.80214
DC01A-01I	02/27/03	1010	27	19.91	118.5746
DC01A-02I	02/27/03	1840	26		--
DC01A-03I	02/28/03	1610	6	3.50	93.78177
DC01A-04I	03/01/03	1350	34	13.03	61.63317
AVERAGE				**9.34**	
DC01A-BFA	02/26/03	1810	3	0.78	41.80214
DC01A-01A	02/26/03	1900	4.6	1.20	41.80214
DC01A-06A	02/27/03	500	6.8	--	--
DC01A-08A	02/27/03	900	15	--	--
DC01A-09A	02/27/03	1100	35	25.81	118.5746
DC01A-11A	02/27/03	1500	33	--	--
DC01A-12A	02/27/03	1700	31	--	--
DC01A-13A	02/27/03	1900	26	--	--
DC01A-14A	02/27/03	2100	22	--	--
DC01A-16A	02/28/03	100	15	--	--
DC01A-20A	02/28/03	900	8.6	--	--
DC01A-23A	02/28/03	1500	6.6	3.85	93.78177
DC01A-24A	02/28/03	1800	6.6	--	--
DC01A-29A	03/01/03	1400	4	1.53	61.63317
AVERAGE				**6.63**	

Table A- 6. Data Summary for Conesena Creek

Connesena Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
CS01-BFI	02/26/03	1620	5.5	1.02	28.70056
CS01-01I	02/27/03	940	33	12.22	57.47324
CS01-02I	02/27/03	1735	57	69.53	189.3014
CS01-03I	02/28/03	1520	11	4.56	64.32962
CS01-04I	03/01/03	1230	5.8	1.75	46.8446
AVERAGE				**17.81**	
CS01-BFA	02/26/03	1615	5	0.92	28.70056
CS01-01A	02/26/03	1700	6.5	--	--
CS01-09A	02/27/03	900	27	10.00	57.47324
CS01-11A	02/27/03	1300	160	--	--
CS01-12A	02/27/03	1500	100	--	--
CS01-13A	02/27/03	1800	68	82.94	189.3014
CS01-14A	02/27/03	2000	48	--	--
CS01-19A	02/28/03	600	19	--	--
CS01-23A	02/28/03	1400	11	--	--
CS01-24A	02/28/03	1600	11	4.56	64.32962
CS01-26A	03/01/03	2400	14	--	--
CS01-27A	03/01/03	400	10	--	--
AVERAGE				**24.61**	

Table A- 7. Data Summary Table for Euharlee Creek

Euharlee Creek					
Sample I.D.	**Date**	**Time**	**SSC (mg/L)**	**SSC Loading (kg/hr/mi²)**	**Flow (cfs)**
EC01-BFI	02/26/03	1945	48	7.98	325.9134
EC01-01I	02/27/03	1055	50	12.66	496.2946
EC01-02I	02/27/03	1915	59	14.07	467.5262
EC01-03I	02/28/03	1810	32	10.78	660.0263
EC01-04I	03/01/03	1520	27	4.49	325.9134
AVERAGE				**10.00**	
EC01-BFA	02/25/03	1845	33	6.17	366.4124
EC01-02A	02/26/03	2300	26	4.35	327.8865
EC01-03A	02/27/03	100	28	6.89	482.5194
EC01-04A	02/27/03	300	31	6.90	436.1641
EC01-08A	02/27/03	1100	44	11.14	496.2946
EC01-09A	02/27/03	1300	48	16.29	665.213
EC01-10A	02/27/03	1500	95	36.43	751.5964
EC01-11A	02/27/03	1700	68	24.60	709.0659
EC01-12A	02/27/03	1900	60	14.85	485.1183
EC01-14A	02/27/03	2300	53	12.55	464.0437
EC01-15A	02/28/03	100	46	13.72	584.4713
EC01-16A	02/28/03	300	49	11.11	444.3083
EC01-17A	02/28/03	500	42	8.40	391.754
EC01-18A	02/28/03	700	40	7.83	383.8574
EC01-21A	02/28/03	1300	35	9.99	559.216
EC01-23A	02/28/03	1700	32	10.75	658.3922
EC01-26A	02/28/03	2300	34	7.84	451.8346
EC01-29A	03/01/03	500	29	4.93	333.4404
EC01-34A	03/01/03	1500	27	4.50	326.3076
AVERAGE				**11.54**	

Table A- 8. Data Summary for Oothkalooga Creek

Oothkalooga Creek					
Sample I.D.	**Date**	**Time**	**SSC (mg/L)**	**SSC Loading (kg/hr/mi²)**	**Flow (cfs)**
OT01-01I	02/26/03	1100	16	2.27	74.09793
OT01-02I	02/26/03	2230	36	66.03	958.5578
OT01-03I	02/27/03	1120	100	275.52	1439.972
OT01-04I	02/27/03	2220	52	108.72	1092.689
OT01-05I	02/28/03	1100	3	7.61	1325.826
OT01-06I	03/04/03	1400	17	2.27	69.88579
OT01-26I	03/04/03	1400	NC	NC	
AVERAGE				**92.03**	
OT01-01A	02/26/03	1010	14	26.39	985.26
OT01-02A	02/26/03	1011	NC	NC	
OT01-03A	02/26/03	1120	16	29.54	964.98
OT01-04A	02/26/03	1120	NC	NC	
OT01-13A	02/26/03	2120	36	66.03	958.56
OT01-14A	02/26/03	2120	NC	NC	
OT01-15A	02/26/03	2320	41	75.20	958.56
OT01-16A	02/26/03	2320	NC	NC	
OT01-25A	02/27/03	920	81	223.17	1439.97
OT01-26A	02/27/03	920	NC	NC	
AVERAGE				**98.48**	

Table A- 9. Data Summary for Pine Log Creek

Pine Log Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading ($kg/hr/mi^2$)	Flow (cfs)
PLC01A-01I	02/26/03	1500	18	3.29	223.562
PLC01A-02I	02/26/03	2330	29	7.00	295.3722
PLC01A-03I	02/27/03	1450	130	122.55	1153.622
PLC01A-04I	02/27/03	2315	110	178.41	1984.795
PLC01A-05I	02/28/03	1200	49	46.33	1156.965
PLC01A-06I	03/04/03	1240	14	2.42	211.6299
PLC01A-26I	03/04/03	1240	NC	NC	
AVERAGE				**60.00**	
PLC01A-01A	02/26/03	1415	14	2.56	223.562
PLC01A-03A	02/26/03	1628	20	--	
PLC01A-04A	02/26/03	1628	NC	NC	
PLC01A-09A	02/26/03	2228	28	6.76	295.3722
PLC01A-10A	02/26/03	2228	NC	NC	
PLC01A-11A	02/27/03	28	30	48.66	1984.795
PLC01A-12A	02/27/03	28	NC	NC	--
PLC01A-19A	02/27/03	828	31	--	
PLC01A-20A	02/27/03	828	NC	NC	
PLC01A-21A	02/27/03	1028	110	--	
PLC01A-22A	02/27/03	1028	NC	NC	
PLC01A-25A	02/27/03	1428	150	141.41	1153.622
PLC01A-26A	02/27/03	1428	NC	NC	
AVERAGE				**49.85**	

Table A- 10. Data Summary for Salacoa Creek

Sallacoa Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
SLC02-01I	02/26/03	1650	27	5.61	215.7013
SLC02-02I	02/26/03	2400	40	10.69	277.5055
SLC02-03I	02/27/03	1615	240	206.22	892.3743
SLC02-04I	02/27/03	2355	160	156.88	1018.252
SLC02-05I	02/28/03	1315	99	81.98	860.0262
SLC02-06I	03/04/03	1315	22	3.94	185.7998
SLC02-46I	03/04/03	1315	NC	NC	
AVERAGE				**91.94**	
SLC02-01A	02/26/03	1615	24	13.11	567.1795
SLC02-02A	02/26/03	1615	NC	NC	
SLC02-07A	02/26/03	2230	36	22.90	660.7255
SLC02-08A	02/26/03	2230	NC	NC	
SLC02-09A	02/27/03	30	43	28.21	681.4413
SLC02-10A	02/27/03	30	NC	NC	
SLC02-17A	02/27/03	830	79	67.42	886.2697
SLC02-18A	02/27/03	830	NC	NC	
SLC02-25A	02/27/03	1630	288	390.67	1408.74
SLC02-26A	02/27/03	1630	NC	NC	
SLC02-33A	02/28/03	30	175	279.64	1659.51
SLC02-34A	02/28/03	30	NC	NC	
SLC02-35A	02/28/03	230	146	236.27	1680.63
SLC02-36A	02/28/03	230	NC	NC	
SLC02-41A	02/28/03	830	98	149.48	1584.037
SLC02-42A	02/28/03	830	NC	NC	
SLC02-45A	02/28/03	1230	101	133.90	1376.866
SLC02-46A	02/28/03	1230	NC	NC	
AVERAGE				**146.84**	

Table A- 11. Data Summary for Reference Streams in Coosa River Basin

Amicalola Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
AC01-01I	02/26/03	1230	6.4	1.50	210.3654
AC01-02I	02/27/03	1130	69	39.89	520.019
AC01-03I	02/27/03	1810	110	87.25	713.5881
AC01-04I	02/28/03	1130	20	8.82	396.9369
AC01-05I	02/28/03	1730	13	5.21	360.7354
AVERAGE				**28.53**	
AC01-03A	02/26/03	2400	14	4.40	282.7692
AC01-07A	02/27/03	800	19	6.78	321.1244
AC01-09A	02/27/03	1200	70	41.44	532.6236
AC01-11A	02/27/03	1600	140	111.05	713.5881
AC01-12A	02/27/03	1800	120	95.19	713.5881
AC01-13A	02/27/03	2000	88	65.91	673.7447
AC01-17A	02/28/03	400	27	14.88	495.7676
AC01-21A	02/28/03	1200	13	5.66	391.8471
AC01-24A	02/28/03	1800	13	5.18	358.5503
AC01-28A	03/01/03	1000	8.8	2.98	304.5358
AVERAGE				**35.35**	

Stamp Creek

Sample I.D.	Date	Time	SSC (mg/L)	SSC Loading (kg/hr/mi^2)	Flow (cfs)
STC01-BFI	02/26/03	1155	0.92	0.15	21.01993
STC01-01I	02/27/03	820	1.2	0.27	28.04404
STC01-02I	02/27/03	1525	11	6.70	76.18482
STC01-03I	02/28/03	1150	0.74	0.20	33.73232
STC01-04I	03/01/03	1100	0.74	0.16	26.4053
AVERAGE				**1.50**	
STC01-BFA	02/26/03	1210	0.12	0.02	21.01993
STC01-01A	02/26/03	1300	0.12	0.02	21.01993
STC01-05A	02/26/03	2100	1.3	0.22	21.01993
STC01-09A	02/27/03	500	1	0.17	21.01993
STC01-10A	02/27/03	700	1.6	0.27	21.01993
STC01-11A	02/27/03	900	7.4	1.75	29.61639
STC01-12A	02/27/03	1100	33	13.28	50.33972
STC01-13A	02/27/03	1500	14	8.83	78.86641
STC01-14A	02/27/03	1700	7.5	4.04	67.34214
STC01-17A	02/27/03	2300	5.2	1.94	46.70992
STC01-18A	02/28/03	100	2.2	0.76	43.4335
STC01-23A	02/28/03	1100	1.9	0.52	34.09788
AVERAGE				**2.65**	

Table A- 12. Storm Loads and Percent Reductions for Impaired Streams Based on Data

Waterbody	Drainage Area (sq miles)	Existing load (kg/hr/sqmile)	Reference Load (kg/hr/sqmile)	Total Load (kg/hr)	% Reduction (%)
Little Tallapoosa R @ State Line Rd (LTP-01)	246.68	12.69	3.56	878.19	71.9
Little Tallapoosa R @ Northside Dr (LTP-03)[1]	84.76	6.63	3.56	301.73	46.3
Settingdown Creek @ Wallace Tatum Rd (SC-02)[2]	45.38	162.34	35.35	1604.33	78.2
Bannister Creek @ U/S Nicholson Rd (BC-01)[2]	4.90	206.98	35.35	173.32	82.9
Dykes Creek @ SR 293 (DC-01)	14.88	6.63	2.65	39.42	60.0
Connesena Creek @ Old Rome Rd (CS-01)	15.72	24.61	2.65	41.67	89.2
Euharlee Creek @ Covered Bridge Rd (EC-01)	177.15	11.54	2.65	469.45	77.0
Oothkalooga Creek @ Salem Rd (OT-01)	47.06	98.48	2.65	124.71	97.3
Pine Log Creek @ Boone Ford Rd (PLC-01)	111.01	49.85	2.65	294.19	94.7
Sallacoa Creek @ Knight Bottom Rd (SLC-02)	89.89	146.84	2.65	238.20	98.2

Table A- 13. USLE Parameters used in Tallapoosa River Basin Sediment Models

	Tallapoosa River		Settingdown Creek		Bannister Creek	
Factor	min	max	min	max	min	max
LS Factor	0.076	158.826	0.076	191.451	0.076	133.585
K Factor	0.25	0.3	0.25	0.27	0.25	0.25
P Factor	1	1	1	1	1	1
C Factor	0	0.12	0	0.12	0	0.12
R Factor	312.5	337.5	275	275	275	275
Weighted R Factor	324.455	325.627	275	275	275	275
Composite Erosion	0	434.599	0	305.601	0	257.086
Composite Sediment	0	242.501	0	302.786	0	249.356

Table A- 14. USLE Parameters used in Coosa River Basin Sediment Models

	Dykes Creek		Connesena Creek		Euharlee Creek		Oothkalooga Creek		Pine Log Creek		Sallacoa Creek	
Factor	min	max	min	max	min	max	min	max	min	max	min	max
LS Factor	0.076	155.999	0.076	153.811	0.076	199.69	0.076	156.789	0.076	171.518	0.076	223.276
K Factor	0.32	0.35	0.32	0.35	0.24	0.35	0.32	0.35	0.32	0.35	0.25	0.35
P Factor	1	1	1	1	1	1	1	1	1	1	1	1
C Factor	0	0.12	0	0.12	0	0.75	0	0.12	0	0.12	0	0.12
R Factor	300	300	300	300	300	312.5	300	300	300	300	275	300
Weighted R Factor	300	300	300	300	300.047	300.047	300	300	300	300	294.303	297.416
Composite Erosion	0	409.085	0	341.811	0	2661.63	0	503.072	0	470.671	0	701.317
Composite Sediment	0	375.569	0	336.618	0	1789.259	0	321.857	0	469.477	0	699.538

Table A- 15. USLE Parameters Used in Sediment Models of Reference Streams

	Whooping Creek		Amicalola Creek		Stamp Creek	
Factor	min	max	min	max	min	max
LS Factor	0.076	110.373	0.076	260.824	0.123	217.925
K Factor	0.250	0.270	0.25	0.25	0.25	0.35
P Factor	1.000	1.000	1	1	1	1
C Factor	0.000	0.120	0	0.12	0	0.12
R Factor	325.000	325.000	275	275	300	300
Weighted R Factor	325.000	325.000	275	275	300	300
Composite Erosion	0.000	243.396	0	559.579	0	363.302
Composite Sediment	0.000	186.021	0	456.719	0	200.332